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the part of the spectrum covered by the spectroscope of the Mills reflector, only six lines are measurable. It is the opinion of the writer that the application of the method of least squares to stars of this type of spectrum and number of lines is not warranted except in the case that a large number of observations are available, extending over a long interval of time. Preliminary elements were therefore first derived graphically by the formulæ of LEHMANN-FILHÉS. Changes were then made in the derived elements, after comparing with the curve given by the observations, and several sets of elements tested by the observation values. With some experience in this method it is possible in a relatively short time to test and change the elements given by the graphical solution until the resulting values would be little if any bettered by a least-squares solution.

By such methods the following sets of elements were derived:—

	a Carinæ.	*κ Velorum.*	*α Pavonis.*
Period =	6.744 days	116.65 days	11.753 days
$e =$	0.18	0.19	0.01
$k =$	21.5	46.5	7.25
$T =$	J. D. 2416533.81	2416459.00	2416379.90
$\omega =$	115°.84	96°.23	224°.80
Velocity of system =	$+ 23.3^{km}$	$+ 21.9^{km}$	$+ 2.0^{km}$
$a \sin i =$	$1{,}960{,}000^{km}$	$73{,}200{,}000^{km}$	$1{,}170{,}000^{km}$

Details of the observations and residuals are given in *Lick Observatory Bulletin,* No. 122.

HEBER D. CURTIS.

THE D. O. MILLS EXPEDITION,
SANTIAGO, CHILE, June, 1907.

NOTE ON COMET *e* 1907 (MELLISH).

Comet *e* 1907 was discovered on the morning of October 14th by JOHN E. MELLISH, of Cottage Grove (near Madison), Wisconsin, in R. A. 8^h 31^m, Decl. —9° 24′. It was visible with an opera-glass.

From the first three available observations (October 15th, by HARTWIG, at Bamberg; October 16th, 17th, by DUNCAN, at Mt. Hamilton) a preliminary orbit was computed by Professor CRAWFORD, Miss GLANCY, and Miss MORGAN. The elements and an ephemeris are given in *Lick Observatory Bulletin,* No. 121.

On the basis of observations giving a longer arc (October 15th, by HARTWIG, at Bamberg; October 19th, 30th, by DUNCAN, at Mt. Hamilton) a second orbit was computed by Professor CRAWFORD and Miss GLANCY. A part of this computation was checked by Miss MORGAN. The elements and ephemeris extending to the end of this year are published in *Lick Observatory Bulletin,* No. 124.

The two orbits (both parabolic) differ very little from each other. The longitude of the node is 55°; the longitude of the perihelion is 350°. The motion in the orbit is retrograde, the inclination of the orbit plane to the ecliptic being 120°. The comet passed perihelion on September 14th, at a distance of 91,000,000 miles from the Sun. It was nearest to the Earth on November 11th, and at that time was distant 38,000,000 miles, having a theoretical brightness three times as great as on the day of discovery. The comet is now receding from both the Sun and the Earth. It is a matter of interest that the observed brightness of the comet to date has not agreed with the computed brightness.

A. O. LEUSCHNER.

BERKELEY ASTRONOMICAL DEPARTMENT, November 20, 1907.

ECLIPSE EXPEDITION.

The Lick Observatory Crocker Eclipse Expedition left Mt. Hamilton on November 18th, and sailed from San Francisco for Tahiti on the steamship Mariposa on November 22d. From Tahiti the party is to be conveyed to Flint Island, about four hundred miles north, by means of a U. S. naval vessel. It is expected that the party will arrive at Flint Island about December 5th, which will allow four weeks in which to erect the instruments and to make the necessary preparations for the event. Flint Island lies at about 12° south latitude, and is several miles south of the central line of the eclipse shadow. The eclipse is to occur at about $11^h\ 18^m$, local mean time, and totality will last about four minutes.

The party consists of Director CAMPBELL, Astronomers PERRINE and AITKEN, and Assistant ALBRECHT of the Lick Observatory, and Professor E. P. LEWIS of the University of California. They expect to again reach San Francisco about January 25th.

SIDNEY D. TOWNLEY.